

8952



888 Woodstock St. Georgetown, SC 29440
TEL: 843-546-8556 FAX: 843-546-0201

February 28, 2017

Ms. Denise Hall
Bureau of Air
SC Dep't of Health and Env. Control
2600 Bull St.
Columbia, SC 29201

Dear Ms. Hall:

Enclosed is the second half 2016 semi-annual report for 3V Sigma USA. for the MON. If there are any questions please contact me at 843.520.5146 (s.mcnaair@3vusa.com) and/or Vince Centioni at 843.520.5128 (v.centioni@3vusa.com).

Sincerely,

A handwritten signature in black ink, appearing to read 'Scott McNair' in a cursive, stylized script.

Scott McNair
VP of Plant Management

Patrice Lackey

From: Vince Centioni
Sent: Friday, February 24, 2017 10:08 AM
To: Scott McNair
Cc: Patrice Lackey; Brandon McClellan; Steven Varone
Subject: MON semi annual

Scott,

This will be completed by today and placed into your mail box for signature review. It needs to be cert mailed by Tuesday next week 16:30

Addressed to:

Ms. Denise Hall
Bureau of Air
SC Dep't of Health and Env. Control
2600 Bull St.
Columbia, SC 29201

Vince Centioni
Environmental Manager



888 Woodstock St.
Georgetown, SC 29440
Office: 843-520-5128
Mobile: 843-240-0577
Email: v.centioni@3VSigmaUSA.com

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Sincerely,

A handwritten signature in black ink, appearing to read 'Scott McNair'.

Scott McNair
VP of Plant Management

SUBPART FFFF (MON) COMPLIANCE REPORT

Semiannual Report

for

3V Sigma USA

Covering

July 1st, 2016

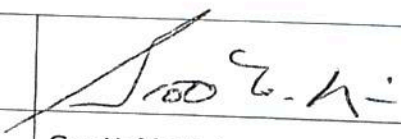
through

December 31st, 2016

Submitted on February 28th, 2017

MON Compliance Report

63.2520 (e) (1) Company Name and Address	
Company Name	3V, Sigma USA.
Street Address	888 Woodstock Street
City, State Zip Code	Georgetown, SC 29440
Mailing Address:	888 Woodstock Street
City, State Zip Code	Georgetown, SC 29440
Contact Person	Vince Centioni
Title	Environmental Manager
Telephone	843.520.0128
Fax	843.546.0007

63.2520 (e) (2) Certification of Truth, Accuracy, and Completeness	
Last Name	McNair
First Name	Scott
Title	Plant Manager
Telephone	843-520-0146
Fax	843-520-0201
I certify under penalty of law that, based on information and belief formed after reasonable inquiry, the statements and information contained in these documents are true, accurate and complete.	
Name (signed)	
Name (printed)	Scott McNair
Date	02/28/2017

63.2520 (e) (3) Date of Report; Reporting Period	
Date Report Submitted:	February 28, 2017
Start of Reporting Period:	July 1, 2016
End of Reporting Period:	December 31, 2016

TABLE OF CONTENTS

1. INTRODUCTION
2. MON COMPLIANCE REPORT RESPONSES
3. ATTACHMENTS
 - A. Excess Emission Events from Start Up, Shutdowns or Malfunctions
 - B. Information On Deviations For Systems Without CMS
 - C. Information On Deviations On Systems With CMS
 - D. Copies of Operating Logs of Sources Using CMS for Compliance (68H002 Thermal Oxidizer).
 - E. Operating Scenarios
 - F. Report for Subpart UU (LDAR Summary).

1. INTRODUCTION

3V Sigma USA is subject to the Miscellaneous Organic NESHAP 40 CFR Part 63 Subpart FFFF for organic chemical manufacturing processes in unit ID's 04, 05, 06 and 07. The facility is also subject to the Pharmaceutical MACT 40 CFR Part 63 Subpart GGG in unit ID 04. The purpose of this notification is to document the facility's compliance status with Subpart FFFF.

This report has been formatted by following the periodic report section of Subpart FFFF located in 63.2520 (e). Specific CFR citations are listed in their order with a response to each. In some cases it was convenient to prepare the information requested in a separate report. In these cases that report is provided as an attachment.

2. MON COMPLIANCE REPORT RESPONSES

63.2520 (e) (4) *Records showing that for each SSM during which excess emissions occurred, procedures specified in the SSMP were followed. Documentation of actions taken that were not consistent with SSMP. Brief description of each malfunction.*

Provided in Attachment A is a list SSM events that may have resulted in excess emissions. This list comprises all events involving a malfunction or shutdown of control devices. The facility SSM Plan requires operators to reduce production activity to minimize emissions during control device service interruption until the unit can be restarted or back-up systems can be put in place.

During the reporting period there were scheduled holiday production shutdowns on July 4th, Labor Day, Thanksgiving, and Christmas. Also there was a mandatory Hurricane Matthew 2 day facility shut down on October 6th and 7th. The normal weekly production schedule was Monday – Saturday, except occasional Saturday shutdowns. The week after the Hurricane Matthew shut down the facility operated the next full weekend at 100 % manufacturing to compensate for the downtime.

On September 8th 2016, after a thorough inspection & investigation, operations deemed the thermal oxidizer unsafe to restart/ignite. The entire unit burner assembly and refractory combustion chamber was damaged beyond repair. Production continued venting/operating by using backup device – 68H001 Flare throughout the reporting period. TOX, Flare, and Cryogenic condenser CMS stopped on 08/22/16 & 8/23/16 due to RS view communication loss to the server from a network power outage caused by an apparent lightning strike. During each CMS event the control devices maintained performance test temperature limits (~ 1500 F TOx & - 130 F 01-CE01/01-CE02).

The facility nitrogen supplier – Air Liquide installed a check valve on the pipe that supplies liquid nitrogen from the storage tank to 01CE-01/01 CE-02. The valve was wrapped in 8 inches of insulation thereby making it unaware to facility personnel. On June 10th around 14:00 the Air Liquide check valve broke and the liquid nitrogen flow was restricted from the storage tank to CE-01/02. The failure caused the facility to exceed controlled monitoring device daily avg temperature limits on July 12th, 13th, 14th, 15th, 18th, 19th, and 20th. The daily average limit was established by engineering design evaluations and initial control device performance tests. A maintenance record summary spreadsheet is attached. See Table 63.2520(e)(5)(iii)(L).

63.2520 (e) (5) (i) *Statement indicating there were no deviations from any emission limit, operating limit, or work standard during the reporting period.*

Not Applicable.

63.2520 (e) (5) (ii) *For each deviation from an emission limit, operating limit, and work standard that occurred at an affected source where CMS is NOT used to comply with same provide the following....*

63.2520 (e) (5) (ii) (A) *Total operating time of the affected source during the reporting period,*

Total operating time during reporting period was 3312 hours.

63.2520 (e) (5) (ii) (B) *Information on number, duration, and cause of deviations, and corrective action taken for deviations including periods of SSM.*

No deviations from systems where CMS is NOT used to comply with regulations.

63.2520 (e) (5) (ii) (C) *Copies of operating logs of processes with batch vents from batch operations on day(s) during which deviation occurred for those deviations from emission limits, operating limits, and work standards, occurring at an affected source where CMS is NOT used to comply with same. Include periods of SSM.*

Not applicable.

63.2520 (e) (5) (iii) *For each deviation from an emission limit or operating limit occurring at an affected source where you are using a CMS to comply with an emission limit in this subpart, include the following information:*

63.2520 (e) (5) (iii) (A) *Dates and times that each CMS was inoperative for sources where CMS is used to comply with emission limits and operating limits.*

See Attachment B for CMS downtime details.

63.2520 (e) (5) (iii) (B) *Date, time, and duration that each CMS was out-of-control.*
No periods of CMS out-of-control during this reporting period.

63.2520 (e) (5) (iii) (C) *Date and time that each deviation started and stopped, and information on whether the deviation occurred during SSM, for deviations at sources where CMS is used to comply with emission limits and operating limits.*

See Attachment C.

63.2520 (e) (5) (iii) (D) *Summary of the total duration of deviations occurring during the reporting period, and total duration as a percent of the total operating time*

of the affected source where CMS is used to comply with emission limits and operating limits.

See the table that follows.

Table 63.2520 (e) (5) (iii) (D) Summary of Total Duration of Deviations Occurring During the Reporting Period, and Total Duration as a Percent of the Total Operating Time			
Parameter	Monitor	Duration of Exceedances, hr	Percentage of exceedances, %
01CE-01/01-CE-02 (CryoCond temp)	TI-26/TI-27	168.0	5.07
68-H001 Ground Flare temp	68TT6001	6.7	0.20
68-H002 TOx temp	68TT300-3	46.6	1.41

There are deviations from the temperature limits listed in Table 63.2520 (e) (5) (iii) (I) below from the cryogenic condenser, thermal oxidizer, and ground flare.

63.2520 (e) (5) (iii) (E) Breakdown of total duration of deviations into startup, shutdown, control equipment problems, process problems, other known causes, and unknown causes for deviations at sources where CMS is used to comply with emission limits and operating limits.

See table that follows.

Table 63.2520 (e) (5) (iii) (E) Breakdown of Total Duration of Deviations into Various Categories - 68H001/002 & CE01/02						
Control Device	Startup	Shutdown	Control Equipment Problems, (hr)	Process Problems	Other Known Causes	Other Unknown Causes
68H001	0	0	6.7	0	0	0
68H002	0	0	46.6	0	0	0
CE01/02	0	0	168	0	0	0

63.2520 (e) (5) (iii) (F) *Summary of total duration of CMS downtime during reporting period, and as a percent of the total operating time of the affected source where CMS is used to comply with emission limits and operating limits.*

See table that follows.

Table 63.2520 (e) (5) (iii) (F)				
Summary of Total Duration of CMS Downtime.				
Device	Monitor	Parameter	Duration of downtime [hours]	Percentage of downtime [%]
68H001	68TT6001	Temperature	21.5	0.65
68H002	68TT300_3	Temperature	21.5	0.65
01CE01 & 01CE02	01 TI 26 & 01 TI 27	Temperature	21.5	0.65

63.2520 (e) (5) (iii) (G) *Identification of each HAP known to be in the emission stream from each source where CMS is used to comply with emission limits and operating limits.*

See table that follows.

Table 63.2520 (e) (5) (iii) (G) HAP's in Emission Streams.	
Device ID using CMS	List of Known HAP's in Emission Stream
68H002	Acetaldehyde, Acrylamide, Ethyl acrylate, Methanol, Vinyl Acetate, Xylene
01CE01 & 01CE02	Methylene Chloride

63.2520 (e) (5) (iii) (H) *Brief description of process units.*

The facility consists of batch chemical manufacturing process units, wastewater treatment units, storage tanks, and air pollution control equipment for the reduction of organic HAP's including: two thermal oxidizer units (68H001 and 68H002) and a cryogenic condenser system, 01CE01, 01CE02. All batch process vents containing methylene chloride are routed to the cryogenic condenser. For the process vents, the cryogenic condenser has been determined to be a process condenser and the vents are collectively Group 2. For storage tanks the cryogenic condenser has been determined to be a control device. There are no continuous process sources.

The affected source includes the MCPU's listed in the table that follows.

Table 63. 2520 (e) (5) (iii) (H) Chemical Manufacturing Processes Operating during the reporting period.	
MCPU	Chemical Manufacturing Processes
04 – Alpha/Beta/Epsilon Plant	Extrapin, Tabanol K, Tabanol NA, Tabanol G, Tabanol 5, Plastol H, Tabanol E, and Tabanol P.
05 – Gamma Plant	Tabanol 5
06 – Delta 1 Plant	Efram CR, Tabanol 1 and Tabanol 2
07 – Delta 2 Plant	Tabanol 5

63.2520 (e) (5) (iii) (I) Brief description of CMS:

There were three control devices used by the facility for compliance with Subpart FFFF during the reporting period. These include flare 68H001, thermal oxidizer 68H002 and the cryogenic condensation system 01CE01 and 01CE02. Flare 68H001 serves as a back up to the thermal oxidizer for downtime due to malfunctions and routine scheduled maintenance. The table that follows lists the continuous monitoring for each device.

Table 63.2520 (e) (5) (iii) (I) Parametric Monitoring Required for Control Devices.				
Device	Parameter	Basis for Parameter	Limit	Basis for Limit
68H001	Combustion Temperature	63.988(c)(1)	1464 °F	Average temperature from test
68H002	Combustion Temperature	63.988(c)(1)	1476 °F	Average temperature from test
01CE01	Condenser temperature	63.985(c)	-49 °F	Temperature from design evaluation
01CE02	Condenser temperature	63.985(c)	-49 °F	Temperature from design evaluation

63.2520 (e) (5) (iii) (J) Date of latest CMS certification or audit:

See table that follows.

Table 63.2520 (e) (5) (iii) (J) CMS Certification/Audit Dates.		
Device ID	Monitoring Equipment	Date of Latest CMS Certification/Audit
68H002 Thermal Oxidizer	68TT300-3	07/26/2016
68H001 Ground Flare	68TT6001	07/19/2016
01CE01 Cryogenic Condenser	01TI 26	08/15/2016
01CE02 Cryogenic Condenser	01TI 27	08/15/2016

63.2520 (e) (5) (iii) (K) *Operating logs of processes with vents from batch processes for each day of a deviation where CMS is used to comply with deviations from emission limits and operating limits:*

See Attachment D

63.2520 (e) (5) (iii) (L) *Operating day average values of monitored parameters for each day during which there was a deviation for sources where CMS is used to comply with emission limits and operating limits:*

Table 63.2520 (e) (5) (iii) (L) Operating Day Average Values for Each Exceedance Date.			
Date	Device	Monitor	Average, °F
7/12/16	01 CE01/02	01TI 26 & 01TI 27	43.1
7/13/16	01 CE01/02	01TI 26 & 01TI 27	37.5
7/14/16	01 CE01/02	01TI 26 & 01TI 27	21.5
7/15/16	01 CE01/02	01TI 26 & 01TI 27	-16.5
7/18/16	01 CE01/02	01TI 26 & 01TI 27	26.8
7/19/16	01 CE01/02	01TI 26 & 01TI 27	39.8
7/20/16	01 CE01/02	01TI 26 & 01TI 27	-21.9
8/31/16	68 H002	68TT300-3	1332
9/6/16	68 H002	68TT300-3	1383
9/8/16	68 H002	68TT300-3	1473
10/31/16	68 H001	68TT6001	1406

Note:

See section **#2. MON REPORT RESPONSES** for control issues regarding the thermal oxidizer and cryogenic condenser

63.2520 (e) (5) (iv) *Records associated with each calculation required by 63.2525 (e) that exceeds an applicable HAP usage or emissions threshold:*

Emission calculations used to designate Group 2 process vents in the NOCS. No Group 2 process vents relying on HAP usage demonstration.

63.2520 (e) (6) *Statement indicating no periods of out-of-control CEMS:*

Not applicable. Facility does not use CEMS for compliance with Subpart FFFF.

63.2520 (e) (7) *New operating scenarios not already submitted:*

See Attachment E for new operating scenarios since last periodic report. Emissions from this source were included in the construction permit application for the installation of the cryogenic condensation system (CP-FJ).

63.2520 (e) (8) *Records of process units added to a PUG; records of primary product re-determinations:*

Not applicable.

63.2520 (e) (9) *Records and information for periodic reports as specified in referenced subparts F, G, H, SS, UU, WW, and GGG of this part, and subpart F of 40 CFR 65:*

Information requested in Subpart SS is provided in sections 63.2520 (e)(5)(iii) of this report. See Attachment F for Subpart UU report.

63.2520 (e) (10) *Process changes:*

Not applicable.

ATTACHMENT A

Excess Emission Events from Start Up, Shutdowns, or Malfunction

Fail Date	Fail Time	Duration Hours	Unit	SSMP Followed?	Cause – Corrective Action
Thermal Oxidizer and Ground Flare					
6/2/2016	1730	0.3	68H002	Yes	High combustion temp. Restarted. Flare on.
7/21/2016	1020	1.0	68H002	Yes	High pressure. Switched sock.
7/22/2016	0818	0.1	68H002	Yes	High pressure. Restarted.
8/10/2016	2000	0.4	68H002	Yes	Flame failure. Reset restarted.
8/12/2016	0300	4.8	68H002	Yes	Burner failure. Reset restarted.
8/13/2016	0955	1.2	68H002	Yes	High combustion temp. Restarted. Flare on.
8/13/2016	1244	4.5	68H002	Yes	High combustion temp. Restarted. Flare on.
8/14/2016	1500	7.5	68H002	Yes	High combustion temp. Restarted. Flare on.
8/19/2016	0600	9.5	68H002	Yes	High combustion temp. Restarted. Flare on.
8/23/2016	1628	7.5	68H002	Yes	High combustion temp. Restarted. Flare on.
8/25/2016	0800	0.5	68H002	Yes	High combustion temp. Restarted. Flare on.
8/26/2016	0845	1.0	68H002	Yes	High combustion temp. Restarted. Flare on.
8/26/2016	1940	1.0	68H002	Yes	Change coupling. Repair. Restarted. Flare on.
8/26/2016	2107	0.5	68H002	Yes	High combustion temp. Restarted. Flare on.
8/26/2016	2236	1.0	68H002	Yes	High combustion temp. Restarted. Flare on.
8/27/2016	0010	4.5	68H002	Yes	High combustion temp. Restarted. Flare on.
8/27/2016	0840	0.1	68H002	Yes	High combustion temp. Restarted. Flare on.
8/30/2016	0720	0.1	68H002	Yes	High combustion temp. Restarted. Flare on.
8/30/2016	1038	0.1	68H002	Yes	High combustion temp. Restarted. Flare on.
8/30/2016	1310	0.1	68H002	Yes	High combustion temp. Restarted. Flare on.
9/1/2016	0505	2.5	68H002	Yes	High combustion temp. Restarted. Flare on.
9/2/2016	1850	0.1	68H002	Yes	High combustion temp. Restarted. Flare on.
9/8/2016	2223	-	68H002	Yes	High combustion temp. Restarted. Flare on.
9/9/2016	1336	1.0	68H001	Yes	Planned shutdown TOX.
10/31/2016	0000	9.5	68H001	Yes	High temp flame arrestor. Restarted.
01CE01 & 01CE02					
8/4/2016	0920	0.6	Polaris	Yes	Shut down. Restarted.
8/15/2016	0730	0.5	Polaris	Yes	Replaced TT-26/27, thermocouples
9/8/2016	2215	2.5	Polaris	Yes	Drained all knock out pots. Vapor line liquid.
12/13/2016	0323	0.75	Polaris	Yes	Blower tripped. Restarted.
12/21/2016	0140	2.0	Polaris	Yes	XV-04B malfunction. Switched air line on valves.

Notes:

Omitted from the Attachment A. SSMP list are a number of minor events involving the cryogenic condenser (duration < 0.5 hr) that did not effect emissions. The system is passive and contains a large reserve of refrigeration capacity. Even when the unit shuts down vent gases continue to pass through the system at temperatures well below the limit.

ATTACHMENT B

Detailed Information On CMS Downtime

Control Device	Monitor ID	Date	Time	Duration, hrs
01-CE01/01-CE02	TT-26/TT-27	08/22/16	14:12 – 23:59	10.0
68H002	68TT300_3	08/22/16	14:12 – 23:59	10.0
68H001	68TT6001	08/22/16	14:12 – 23:59	10.0
01-CE01/01-CE02	TT-26/TT-27	08/23/16	00:00 – 11:28	11.5
68H002	68TT300_3	08/23/16	00:00 – 11:28	11.5
68H001	68TT6001	08/23/16	00:00 – 11:28	11.5

Note:

CMS for the TOx, Flare, and Cryogenic condenser was lost for 21.5 hrs due to RS view communication loss to the server from an apparent power outage connected to an on-site facility lightning strike. During each event the control devices maintained performance test temperature limits (~ 1500 F at TOx Flare, and ~ -130 F at the Cryo).

ATTACHMENT C

Information On Deviations On Systems With CMS

Table 63.2520 (e) (5) (iii) (C) Ground Flare 68H001 & TOx 68H002 Start/End Date and Times of Temperature Deviations.						
Date of Deviation	Device	Deviation Start Time	Deviation End Time	Duration, hrs	Cause	SSM?
08/31/16	68-H002	00:00	23:33	20.4	Burner assembly, refractory combust chamber	YES
09/06/16	68-H002	07:21	23:59	16.5	Burner assembly, refractory combust chamber	YES
09/08/16	68-H002	09:38	22:23	9.8	Burner assembly, refractory combust chamber	YES
10/31/16	68-H001	- 00:00 - 16:39	- 11:30 - 23:10	6.7	Control problem	No Shutdown

Table 63.2520 (e) (5) (iii) (C) 01CE01 & 01CE02 Cryogenic Condenser Start/End Date and Times of Temperature Deviations.					
Date of Deviation	Deviation Start Time	Deviation End Time	Duration (hr)	Cause	SSM?
07/12/16 - 07/15/16	07/12/16 - 00:00	07/15/16 - 23:59	96	Nitrogen supply	No shutdown
07/18/16 - 07/20/16	07/18/16 - 00:00	07/20/16 - 23:59	72	Nitrogen supply	No shutdown

ATTACHMENT D**Copies of Operating Logs of Sources Using CMS for Compliance**

Pos

TK516	12.7	V322	1.0	U575
TK511	18.7	V3248	6.2	U576
TK512	-	V373	12.1	U577
TK513	19.5	TK251	4.4	U578
V369	16.6	TK310	16.5	U579
				U580

TK511	U-572	2	TK2
S	11.0		4.5
F	0		9.5

Run TK310 1 U-572

Mallory	08/22/2016	Monday	23:00 to 01
23:00	TK310 12.7	V3248	3.7
	TK511 18.7	TK251	4.6
	TK512 0.5	V322	1.0
	TK513 19.5	V373	17.0
	C303 CONT	TK310	14.2
	V584 3.5	TK254	-
	V586 15.4	TK301	18.9
	V405 5.18	V381	17.9
	C503 DOWN	V369	16.5
	C504 1st pass Dist B	V321	10.2
	V4534 0083X DOWN	V440	17.1
	C506 0083X needs sample	V441	2.0

— Pumped V405 to V584

23:50 Logged in 1680 JS60897D 1516.1

~~Cont. to 024178~~

1:08 V578 to V577 for 2nd
 12.0 ft
 < 2.5 ft (m/r) < 2.5 ft (m/r)
 9.6 ft

01:48 Logged in V586 1516H274

02:45 V580 to TK251
 9.7 ft 4.2 ft
 2.1 ft 4.8 ft

03:00 V586 H274
 OK
 0083X 4
 00544 3
 0209CA 0
 0130H 1192

03:10 V586 to LWTP TK109
 24.0 ft 31.2 ft
 1.8 ft 32.5 ft

03:10 Notified Alpha/Beta
 04:23 Notified again stripper is available

04:23 V440 to V584
 17.1 ft 1.9 ft
 5.6 ft 11.4 ft

06:30 Logged in V584 H275

RHCH

18/23/16

1st

TK510-10.7

V322-1.0

V575-0.5

TK511-18.3

V323-10.2

V576-0.5

TK512-0.5

V324B-3.9

V577-2.6

TK513-19.5

TK251-4.2

V578-7.1

CS03-DN

TK301-18.9

V579-3.8

CS04-Running 2nd pass

TK302-14.9

V580-9.1

CS04 TO WTP
 S 525 4049AL
 F 0

Pulled V578 sample Put in LAB.

NOTE Truck coming for TK511 Thursday They
 took 3.5' out of V349 + 3.5' out of V388 today.

Per Vink Truck coming tomorrow for TK511 ALSO
 NOTE Crago computer Back up

A in B Dist

TK310 TO V577
 S 14.9 S 2.6
 F 11.5 F 9.2

Shut Down stripper Pulled V586 sample Put in LAB

Got RESULTS on V586 & Filing to WTP
 Beta sending V328 TO V584 H 276

RUS 8/23

TK510 12.7	V323 10.2	V575
TK511 18.5	V324 3.9	V576 1
TK512 -	V377 17.0	V577 9.
TK517 19.9	TK751 4.5	V578 7
	TK310 12.4	V579 3
		V580 3

Note Talked to Allen
We will No Longer
Be getting 94A From
U-322 they will use
that tank for something
Else. We will Receive
From U-323

Tox Dam Re Start; FRANE
Setting up C-507 ON-LINE

~~Revised U-323 U-575
S 10.5 .0.5
F~~

Tox Dam

Line 1 WWP From U-588
is Stopped up

Replaced 2 baskets in Line
the WWP
Still Plugged

Tox Dam

10

11

11

35

11

11

10

Tox Dam

Still Work on Line 1 WWP
from U-588

Mallory 08/23/2016 23:00 to 07:00

2300	TK510 12.8	V3248 3.9
	TK511 18.6	TK251 4.7
	TK512 0.5	V322 1.0
	TK513 17.5	V323 11.3
	C323 Down	V373 17.6
	V584 11.5	TK30 14.5
	V586 18.5	TK254
	V405 3.8	TK301 18.9
	C503 Down	V369 12.9
	C504 Dis "B" loop	V321 7.5
	V4534 0283x DN	V440 7.1
	C505 0283x DN	V441 2.0

2300 V586 to WWTP still clogg
with steam,

23:21 FOX Down.

00:20 Restarted.

00:45 C504 to WWTP
435 mm 350 gpm
M/T

00:45 N2 truck here

— continued steaming vs
clog seems to be
outwalk to main line

note Called Richard Church at
00:45, no response,
message for him to call

— there 10' 11"

15:10 W.O. # 16111

Ground Flare will not start.
Troubleshoot & Repair.

Talked to Dusty. No one here
Repair.

15:10 Steam Down for Repairs to cond. Retu.
UA534

15:30 Maint finished. Repairs

15:30 Talked to Wayne. They will Troubles.
E+I Ground Flare & Flare
W.O. # 16111 / W.O. # 15.

16:30 Steam & cond valves in.

Note Steven V. & Melony locked Ground
Flare gas & vent ^{into} valves closed.
Steven V. ~~has~~ has the keys.
E+I could not fix.

16:30 V323 to V575
✓ 8.7 ft 1.0 ft
4.8 ft 10.3 ft

17:21 Logged in V586 1516 H 286

0083N 0

0084A 31

0035M 1149

0259CM 0

17:53 V586 to UNWTP TR101
20.0 ft 30.5 ft
3.0 ft

RAY

08/31/2016

1"

TK-510	11.8	V 322	1.0	V 5"
TK-511	12.2	V 323	7.2	V 5"
TK-512	0.5	V 324 B	5.6	V 5"
TK-513	19.4	TK 251	5.6	V 5"
C 503	OFF Steam	TK 301	18.9	V 5"
C 504	Repairs	TK 310	9.5	V :
C 505		V 369	15.9	
		V 373	8.6	
		V 381	11.4	

Steam valved out waiting on time ref
the high line east side of epsilon

MAINT. Replaces Pipework in

0940	V 316	00940	99.92	→ V 37
\$ 10.4	0135M	508 ppm	8.6	
K 0	H ₂ O	7456 ppm	15.	
	APM	S		
	App	PAOS		

1130 Removed Solids from C 503: Rg

Mallory	08/31/2016	15:00	to 22:00
1500	TK 510	11.8	TK 248 6.4
	TK 511	12.2	TK 251 4.0
	TK 512	0.5	V 323 8.7
	TK 513	19.7	V 373 15.2
	C 503	cont	TK 310 9.7
	V 584	7.1	TK 254
	V 586	8.9	TK 301 11.7
	V 405	4.06	V 381 11.9
	C 503	00944 AN	V 369 8.7
	C 504	Dist "B" ON	V 321 17.0
	V 534	1053Y AN	V 440 11.8
			11.8

2057 ✓ $\frac{V324B}{11.0 \text{ H}}$ to $\frac{V452P}{-}$
 $\frac{6.5 \text{ H}}{}$ C1055
 Bar

— 2056 Loaded to V4534
 — 20187 Loaded to V580

2058 Aft. find Bote stripped is empty
 2010 Sending V360 to V584

Rhett	02/31/16	3rd
TK510-11.8	V322-1.0	V6
TK511-12.2	V323-5.3	V8
TK512-0.5	V324B-6.4	V8
C503-Running	TK251-4.0	V8
C504-Running	TK301-11.7	V8
C505-Running	TK301-11.3	V8
TK513-19.4	V364-8.8	
	V373-15.2	
	V381-11.8	

C503 TO TK510

S 550 S 11.8

F 0 F 12.5

C504 TO WFF

S 600 S

F 0 F 450 g/m2

Pulled V584 sample started trigger

Pulled V578 sample FNLBB.

V578 TO TK254

C 7.1 C 17.14

TK310 TO V577
S 12.8 S 26
F 9.0 F 9.0

TOX went down Restarted Logged in
Had lots of Problems with TOX
V580 TO V579
S 9.4 S 2.7
F 5.3 F 6.7

TOX Down again in 620 High Temp

Pulled V580 sample Put in LAB.

7.1
1.0
2.6
2.0
2.0
2.1

Re: 9/1

Th510	13.2	V373	5.1	V575	3.9
Th511	12.2	V3245	7.9	V576	2.5
Th512	-	V373	15.3	V577	9.9
Th513	19.3	Th251	3.6	V578	2.5
		Th310	9.0	V579	6.7
				V580	5.3

Ryan Dorsey
5th fl

80% SLO240 (HEB) F0351 Regal
20% SLO237

from V321

10 09/05/2014

TK510 13.9

TK511 15.3

TK512 0.5

TK513 18.9

TK51 2.9

TK301 11.7

TK310 10.7

V373 14.5

V323 5.8

V324B 15.0

C503 0094A DAW

C504 DOTING

C505 0083X

UASSA

mtc

23a

V5

V5

V5

V5

V5

V5

Rus 9/6

TK510 13.9

TK511 15.2

TK512 -

TK513 18.9

V327 5.8

V324B 15

V373 14.4

TK251 2.9

TK310 10.7

V575

V576

V577

V578

V579

V580

V-576 S 10.9

F 4.2

V-373 S 14.4

F 18.6

T-K310 S 10.7

F 7.7

~~TK~~-577 S 2.5

F 9.3

V 575 S 1.4

F 8.9

V 323 S 5.9

F 2.6

Rhett

09/06/16

2nd

TK510-12.8

V322-1.0

V515-3.3

TK511-15.3

V323-2.6

V516-7.6

TK512-0.5

V324B-9.4

V517-7.1

TK513-19.0

TK251-1.9

V518-8.3

C503-0W

TK201-11.7

V519-4.4

C504-Loop

TK310-7.7

V520-2.8

C505-Running

V325-1.9

V326-18.9

V381-12.8

C504 TO WTP

S 625 490 GAL

F 0

Δ IN B Dst

Shut Down Stripper + Pulled V586 sample put in LAB.

C503 TO TK510

S 450 S 12.8

F 0 F 13.3

V516 TO V517

S 10.2 S 4.8

F 5.4 F 9.7

C503 TO TK511 T1R2 Cut

S 180mm S 15.2

F 0 F 15.4

S 76 TO V575 2nd pass Added 2016 TO V575

S 9.0 S cut

F 0.5 F 9.0

Results ON V586 x Firing TO WTP
V586 x Firing FROM V321 TO V584 F293

1579 TO TK 510
 S 9.7 S 13.3
 F 3.3 F 15.4

100 Tues 09/06/2010

TK510 15.4	
TK511 15.4	V323 2.4
TK512 0.5	V324B 9.4
TK513 18.9	C503 0054A DOWN
TK514 1.5	C504 DIST 1/8"
TK515 11.7	C505 0059K
TK516 9.9	V3251 n
V373 18.8	TK254 19' 4"

Changing COOL FOR 2nd PASS
 " COOL DISTANCE → TK 301 \$ 11.
 JMT STRIPPER. P 13.

0020 VS80 → TK231
 \$ 5.4 1.5
 P 2.1 2.1

V324B → V3251
 \$ 2.4 —
 P 4.4 —

CHANGING COOL FOR 2nd PASS
 " COOL DISTANCE → V3251
 " COOL DISTANCE → VS80

0350 TK310 → VS77
 \$ 10.8 2.4
 P 7.8 9.2

0600 Stripped VS86 15/6 & 293

Rhet

10/31/2016

TK510-10.14

V322-1.0

TK511-7.1

V325-1.0

TK512-0.5

V324B-5.9

TK513-12.5

TK251-3.3

C503-DN

TK381-4.1

C504-Running

TK318-12.4

C505-DN

V329-14.2

V373-15.0

V381-16.3

V577 TO TK310

S 6.4 S 12.6

F 11.7 F 15.9

TK254 TO V577

S 17.5" S 11.7

F 14.6" F 6.0

V579 TO TK510

S 6.1 S 10.5

F 2.7 F 11.8

V579 TO V1534

S 2.7 S -

F 0.5 F -

V324B TO V1534

S 8.0 S -

F 5.9 F Cross
Bar

Loaded 2014F

Loaded 055

Shut Power Stripper & Packed V586 sample

Packed V578 sample Put in LAB

Place Header pins in switch to the other sock

RC 10/31/2016

TK510 11.9

TK511 2.0

TK512 0.5

TK513 12.4

TK514 2.9

TK515 4.1

TK516 15.9

V323 14.9

V323 1.0

V324B 5.8

C503 0084A Down

C504 Dist "B" 1

C505 0083A Dist

V4534 " " "

230

V575

V576

V577

V578

V579

V580

2330 V586 → TK102

\$20.0 7.0

R 2.5 10.4

Both Sundry V441 → V584

\$3.3

R9.7

0100 V578 0135M 32.14%

0344M 100.08%

11.0 1.8%

Doing A Battery Out in C-504

V578

\$10.3

R7.0

0120 Sampled V584 1516M 360

ADJUSTED GATE FLOW TO FLAME

0125 TK-310 → V577

\$15.8 2.6

R 12.8 9.0

0130 FLAME IS BURNING 1400°F Switch down 0083A
WROTE W.O. (16817) TO CHECK Temp. Trans m. h
V580 → V579

Description	Status	Requested By	Schedule Date	Work Type	Asset	Procedure	Work Request ID	Added	Completed	Printed	Comments	Procedure Comments
change 25 micron filter socks @ TOX	Completed	rchurch	11-Jul-16	NORMAL	H-002-68	WORK-SAFETY	15431	11-Jul-16	11-Jul-16	11-Jul-16	change filter sock @ TOX	Parts W.O
change insert	Completed	rchurch	13-Jul-16	NORMAL	H-002-68	WORK-SAFETY	15458	13-Jul-16	28-Jul-16	13-Jul-16	change insert on tox	
Instrumentation, Calabration TT-600-1	Completed	wcox	26-Jul-16	GAU	H-002-68	WORK-SAFETY	15596	26-Jul-16	08-Aug-16	26-Jul-16	Instrumentation, Calabration TT-600-1	replaced thermocouple, back in service.
Instrumentation, Calabration TT-300-3	Completed	wcox	26-Jul-16	GAU	H-002-68	WORK-SAFETY	15595	26-Jul-16	08-Aug-16	26-Jul-16	Instrumentation, Calabration TT-300-3	TC was changed. The thermowell is damaged and needs to be replaced during a shutdown. Weld repair.
bad coupling	Completed	Rus	25-Aug-16	NORMAL	H-002-68	WORK-SAFETY	16026	26-Aug-16	26-Aug-16	26-Aug-16	coupling out on fan at tox	
change insert J-8	Completed	rchurch	02-Sep-16	NORMAL	H-002-68	WORK-SAFETY	16136	02-Sep-16	06-Sep-16	02-Sep-16	change insert J-8	
TOX will not start. Need to change photo eye	Completed	rchurch	12-Sep-16	NORMAL	H-002-68	WORK-SAFETY	16229	12-Sep-16	25-Oct-16	12-Sep-16	change photo eye on TOX	replaced he fire eye for tox
weld patch on ground flare stack	Completed	rchurch	05-Jul-16	NORMAL	H-001-68	WORK-SAFETY	15391	05-Jul-16	12-Jul-16	05-Jul-16	weld patch on stack on ground flare stack	
CHANGE MOD MOTOR	Completed	rchurch	01-Nov-16	NORMAL	H-001-68	WORK-SAFETY	15820	01-Nov-16	07-Nov-16	01-Nov-16	MOD MOTOR CONTROLLING FLARE TEMP NOT WORKING	changed mod motor and stack thermocouple. Back in service.
replace sock	Completed	epsilon	20-Dec-16	NORMAL	H-001-68	WORK-SAFETY	17393	22-Dec-16	22-Dec-16		Flare- Replaced sock	Replaced the flar sock
change sock	Completed	R Shoptaw	22-Dec-16	NORMAL	H-001-68	WORK-SAFETY	17409	22-Dec-16	22-Dec-16		change sock at flare east side	Replaced east side sock
Cryo , repair instrumentation air line	Completed	wcox	18-Jul-16	NORMAL	CE-01-68	WORK-SAFETY	15505	18-Jul-16	08-Aug-16	18-Jul-16	Cryo , repair instrumentation air line	repaired broken air line
Replace TI-27 with new certified RTD	Completed	wcox	15-Aug-16	GAU	CE-01-68	WORK-SAFETY	15842	15-Aug-16	30-Aug-16	15-Aug-16	Replace TI-27 with new certified RTD	pulled and replaced with new certified rtd
Replace TI-26 with new certified RTD	Completed	wcox	15-Aug-16	GAU	CE-01-68	WORK-SAFETY	15841	15-Aug-16	30-Aug-16	15-Aug-16	Replace TI-26 with new certified RTD	pulled and replaced the rtd with new certified rtd

ATTACHMENT E**New Operating Scenarios**

No new operating scenarios

ATTACHMENT F**Subpart UU LDAR Report**

b(1)(iv) AGITATORS All Subpart FFFF Units									
Date Monitored:	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Total		
No. Agitators Monitored During Period:	24	23	23	23	23	23	139		
No. Agitators Leaking During Period:	0	0	0	0	1	0	1		
No. Agitators Not Monitored During Period:	0	0	0	0	0	0	0		
Leakage Rate:	0%	0%	0%	0%	4%	0%	0.7%		
No. of Agitators for which Leak Not Repaired:	0	0	0	0	0	0	0		

b(1)(v) COMPRESSORS	
No compressors in HAP service.	

(b)(2) Delay of Repair.	
No. of Delay of Repair Events:	1

(b)(3) Valve Subgrouping Information of 63.1025(b)(4)(I)	
Not Applicable	

(b)(4) PRESSURE RELIEF DEVICES GV SERVICE	
Date of Test:	None
Concentration [ppm]:	NA

(b)(5) Initiation of monthly monitoring for valves:	
Not Applicable	

(b)(6) Quality improvement program for pumps	
Not required due to low leak rate for pumps.	

(b)(7) Alternative means of emission limitations.	
Pressure test report attached.	

(b)(8) No units with later compliance dates at the facility.	
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ATTACHMENT F**ADDENDUM 1
FID MONITORING DETAIL**

FID MONITORING DETAILS BY AREA

Jul-16

Unit ID	Pumps				Agitators			
	Tested	New Leaks	Missed	Unsafe	Tested	New Leaks	Missed	Unsafe
04 - Alpha/Beta	14	0	0	0	4	0	0	0
05 - Gamma	13	0	0	0	6	0	0	0
06 - Delta	14	0	0	0	14	0	0	0
04 - Epsilon	15	0	0	0	0	0	0	0
09 & 10 - Tank Farm	18	0	0	0	0	0	0	0
Totals	74	0	0	0	24	0	0	0
	100.0%	0.0%	0.0%		100.0%	0.0%	0.0%	

Aug-16

Unit ID	Pumps				Agitators			
	Tested	New Leaks	Missed	Unsafe	Tested	New Leaks	Missed	Unsafe
04 - Alpha/Beta	8	0	0	0	3	0	0	0
05 - Gamma	13	0	0	0	6	0	0	0
06 - Delta	14	0	0	0	14	0	0	0
04 - Epsilon	15	0	0	0	0	0	0	0
09 & 10 - Tank Farm	18	0	0	0	0	0	0	0
Totals	68	0	0	0	23	0	0	0
	100.0%	0.0%	0.0%		100.0%	0.0%	0.0%	

Sep-16

Unit ID	Pumps				Agitators			
	Tested	New Leaks	Missed	Unsafe	Tested	New Leaks	Missed	Unsafe
04 - Alpha/Beta	8	0	0	0	3	0	0	0
05 - Gamma	13	0	0	0	6	0	0	0
06 - Delta	14	0	0	0	14	0	0	0
04 - Epsilon	15	0	0	0	0	0	0	0
09 & 10 - Tank Farm	18	0	0	0	0	0	0	0
Totals	68	0	0	0	23	0	0	0
	100.0%	0.0%	0.0%		100.0%	0.0%	0.0%	

Oct-16

Unit ID	Pumps				Agitators			
	Tested	New Leaks	Missed	Unsafe	Tested	New Leaks	Missed	Unsafe
04 - Alpha/Beta	8	0	0	0	3	0	0	0
05 - Gamma	13	0	0	0	6	0	0	0
06 - Delta	14	0	0	0	14	0	0	0
04 - Epsilon	15	0	0	0	0	0	0	0
09 & 10 - Tank Farm	18	0	0	0	0	0	0	0
Totals	68	0	0	0	23	0	0	0
	100.0%	0.0%	0.0%		100.0%	0.0%	0.0%	

Nov-16

Unit ID	Pumps				Agitators			
	Tested	New Leaks	Missed	Unsafe	Tested	New Leaks	Missed	Unsafe
04 - Alpha/Beta	8	0	0	0	3	0	0	0
05 - Gamma	13	0	0	0	6	0	0	0
06 - Delta	14	0	0	0	14	0	0	0
04 - Epsilon	15	0	0	0	0	0	0	0
09 & 10 - Tank Farm	18	0	0	0	0	0	0	0
Totals	68	0	0	0	23	0	0	0
	100.0%	0.0%	0.0%		100.0%	0.0%	0.0%	

Dec-16

Unit ID	Pumps				Agitators			
	Tested	New Leaks	Missed	Unsafe	Tested	New Leaks	Missed	Unsafe
04 - Alpha/Beta	8	0	0	0	3	0	0	0
05 - Gamma	13	0	0	0	6	0	0	0
06 - Delta	14	0	0	0	14	0	0	0
04 - Epsilon	15	0	0	0	0	0	0	0
09 & 10 - Tank Farm	18	0	0	0	0	0	0	0
Totals	68	0	0	0	23	0	0	0
	100.0%	0.0%	0.0%		100.0%	0.0%	0.0%	

ATTACHMENT F

**ADDENDUM 2
LEAK LOG**

Leak Date	Component	Equipment	First Attempt	Final Repair	Final Reading	Comments
11/17/16	agitator	A-408/ R-406	11/23/16	01/03/17	100	initial reading 4 %

Note:

A-408/R-402 agitator was found leaking on 11/17/2016 above 10,000 ppm HAP (methylene chloride). During normal operations (85-95% op time), when the equipment is charged/processing solvent, it is under vacuum venting to the cryogenic condenser. At those times previous LDAR inspections & pressure tests did not monitor fugitive emissions > 10,000 ppm. On 11/17/16 the LDAR inspection monitored the equipment apparently not under vacuum emitting excess fugitive emissions at 3-4% methylene chloride. The timing of the LDAR inspection discovered an absent seal barrier for the agitator. Despite passing previous pressure tests and LDAR inspections the equipment was flagged vulnerable to emit excess fugitive emissions. Several temporary barrier attempts to repair occurred by 11/29/2016, and a third LDAR follow up monitored a concentration at 100 ppm. Prior to the 15 day repair deadline the facility made sure to place the equipment under constant 100% vacuum to the controlled air monitoring device (cryogenic condenser). A delay in repair was issued to permanently install an adequate seal barrier since the work would require a two week shutdown of the entire manufacturing facility. On 01/03/2017 the final repair was executed.

ATTACHMENT F**ADDENDUM 3
PRESSURE TEST REPORT**

Annual pressure testing of storage tanks and process equipment completed during this reporting period are included in the following attachment. Any storage tank that was not tested during the second half of 2016 was tested on the first half 2016 semiannual report.

Process equipment is being checked using method 21, and the components checked are included in Subpart UU report. Pressure testing is not being used as a compliance method for process equipment.

PRESSURE TEST REPORT FOR PERIOD JULY 1, 2016 TO DECEMBER 31, 2016

Eq. ID	No. Tests	No. Fails	Facts Re DoR	Date	
02TK102	1	0	main TF	8/3/16	
02TK103	1	0	main TF	8/3/16	
02TK104	1	0	main TF	8/3/16	
02TK210	26	0	main TF	8/3/16	
02TK251	1	0	main TF	weekly	
02TK252	1	0	main TF	7/11/16	
02TK254	1	0	main TF	8/3/16	
02TK256	1	0	main TF	8/3/16	
03TK301	2	1	main TF	8/3/16	
03TK310	1	1	main TF	8/3/2016	
03TK361b	1	0	main TF	8/3/2016	see comment 1.
03V309	1	0	main TF	8/3/2016	(Method 21)
03V310	1	0	main TF	8/3/2016	
03V369	1	1	main TK farm	8/3/16	see comment 1.
03V374	1	0	main TK farm	7/11/16	(Method 21)
03V432	0	0	gamma	not test 2016	see comment 2.
04R402	1	0	gamma	7/12/16	(Method 21)
04TK410	1	0	gamma TF	8/3/16	
04TK411	26	0	main TK farm	weekly	
04TK433	1	1	main TK farm	8/3/15	see comment 1.
05R501	1	0	delta	8/16/16	(Method 21)
05R502	1	0	delta	8/16/16	
05R503	1	0	delta	8/16/16	
05TK501	1	0	delta TF	8/3/16	
05TK505	2	1	delta TF	8/3/15	
05TK507	1	0	delta TF	8/15/16	
05TK516	1	0	delta TF	8/15/16	
05TK519	1	0	main TK farm	8/3/15	
05VA534	1	0	epsilon	7/11/16	

comment: 1.)

- TK-310, V-369, TK-433 were under vacuum to the thermal oxidizer & venting during each pressure test. Method 21 was conducted on all three storage tanks to confirm no fugitive emissions while venting to TOx.

comment: 2.)

- 03V-432 was not pressure tested in 2016. The storage tank passed pressure test on 2/20/2017.

F306 Pressure Check Records for 2016 Alpha, Beta

Passing Pressure Result is no more than 1psi or 27.6 inches wc or 51.7 mmHg lost per hour.

Date	Vessel	Fluid	Initial Pressure psi, in. wc, mmHg	Ending Pressure psi, in. wc, mmHg	Duration of Test in Minutes	Loss Rate per Hour	Pass or Fail?	Corrective Measures
	example	N2	15 psi	1 psi	60	14.0 psi	Fail	
13-Jun-16	R302B	N2	250 in. wc	228 in. wc	60	22.0 in. wc	Pass	
	R307	N2						
6/13/2016	V358	N2	10 in. wc	6 in. wc	60	4.0 in. wc	pass	
13-Jun-16	FP401	N2	10 psi	8.5 psi	60	1.5 psi	pass	
13-Jun-16	D130	N2	5 psi	4.5 psi	60	0.5 psi	pass	
13-Jun-16	R304	N2	200 mmHg	165 mmHg	60	35.0 mmHg	pass	
13-Jun-16	V375	N2	8 in. wc	6 in. wc	60	2.0 in. wc	pass	
13-Jun-16	V376	N2	8 in. wc	6 in. wc	60	2.0 in. wc	pass	
13-Jun-16	C305	N2	100 mmHg	76 mmHg	60	24.0 mmHg	pass	
		N2						
		N2						

* write "under vacuum" if necessary, then leave fields blank
 * include other vessels/tks/reactors PT'd related to the process

PRESSURE TEST RECORD

2000

1. Document: "The Pressure of the People"

Vessel	Substance in Tank/Vessel	Line, Attachments, Other	Fluid	Initial Pressure	Ending Pressure	P units	Duration of Test	Rate	Pass/Fail	Corrective Measures/Venting	Date
02TK102	0135M	PSV, PVCV, Recycle Line	N2	4 1/2	8	WC	30 min	#DIV/0!	P	8/3 milb	
02TK103	FC175	PSV, PVCV, Recycle Line	N2	6 1/2	6 1/2	WC	30 min	#DIV/0!	P		
02TK104	0246AV	PSV, PVCV, Recycle Line	N2	10 1/2	10 1/2	WC	30 min	#DIV/0!	P		
02TK210	0259CM	PSV, PVCV, Recycle Line	N2	5	4	DS	30 min	#DIV/0!	P		
02TK251	0089X	PSV, PVCV, Recycle Line	N2			DS	30 min	#DIV/0!	P		
02TK252	0120A	PSV, PVCV, Recycle Line	A	6 1/2	6 1/2	WC	30 min	#DIV/0!	P		
02TK254	F0893	PSV, PVCV, Recycle Line	N2	13	11	WC	30 min	#DIV/0!	P		
02TK255	0224AN	PSV, PVCV, Recycle Line	N2	8	8	WC	30 min	#DIV/0!	P		
02TK256	SL0537	PSV, PVCV, Recycle Line	N2	9	7	WC	30 min	#DIV/0!	P		
03TK301	SL0537	PSV, PVCV, Recycle Line	N2	14	1 1/2	WC	30 min	#DIV/0!	P		
03TK305H	0625AE	PSV, PVCV, Recycle Line	A			WC	30 min	#DIV/0!	P		
03TK310	Dist B	PSV, PVCV, Recycle Line	N2	7	1/2	WC	30 min	#DIV/0!	P		
03TK311	0921CA	PSV, PVCV, Recycle Line	N2			WC	30 min	#DIV/0!	P		
03TK338	SL0080	PSV, PVCV, Recycle Line	N2	7	7	DS	30 min	#DIV/0!	P		
03TK361b	0120A	PSV, PVCV, Recycle Line	A	12	14	DS	30 min	#DIV/0!	P		
03TK370	01101	PSV, PVCV, Recycle Line	N2	N/A	N/A	WC	N/A	#DIV/0!	P		
03TK362	2590CM	PSV, PVCV, Recycle Line	N2			WC	N/A	#DIV/0!	P		
03V309	0135M	PSV, PVCV, Recycle Line	N2	9	6 1/2	DS	30 min	#DIV/0!	P		
03V310	0135M	PSV, PVCV, Recycle Line	N2	3 1/2	5 1/2	WC	30 min	#DIV/0!	P		
03V369	WASTE	PSV, PVCV, Recycle Line	N2	6 1/2	6	WC	30 min	#DIV/0!	P		
03V370	0598BT	PSV, PVCV, Recycle Line	N2			WC	30 min	#DIV/0!	P		
03V374	SL0297/0083X	PSV, PVCV, Recycle Line	N2			WC	30 min	#DIV/0!	P		
03V381	Dist C	PSV, PVCV, Recycle Line	N2	7	2	WC	30 min	#DIV/0!	P		
04TK410	0120A	PSV, PVCV, Recycle Line	A	16	16	WC	30 min	#DIV/0!	P		
04TK411	0259CM	PSV, PVCV, Recycle Line	N2	1.75	1.30	DS	30 min	#DIV/0!	P		

POLARIS CRYOGENIC CONDENSER FAILURE LOG SHEET for 2016

page of

TECH	FAIL DATE	FAIL TIME	RESTART DATE	RESTART TIME	Plants Notified Polaris Down?	YES	NO	NOTE HERE IF OPERATIONAL PLANT DOES NOT RESPOND
<i>Wm</i>	<i>08/14/2016</i>	<i>09:20</i>	<i>08/17/16-16</i>	<i>09:58</i>	<i>09:58</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
CAUSE OF FAILURE								
CORRECTIVE ACTION								
<i>Restarted 0959</i>								
<i>ED</i>	<i>08/15/2016</i>	<i>07:30</i>	<i>08/15/2016</i>	<i>08:00</i>	<i>Plants Notified Polaris Down?</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<i>NOTE HERE IF OPERATIONAL PLANT DOES NOT RESPOND</i>
CAUSE OF FAILURE <i>scheduled shutdown to replace T1-26 & T1-27 (due for calibration 08/15/2016)</i>								
CORRECTIVE ACTION <i>T1-26 & T1-27 replaced</i>								
<i>Wm</i>	<i>08/25/2016</i>	<i>06:30</i>	<i>08/25/2016</i>	<i>06:43</i>	<i>Plants Notified Polaris Down?</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<i>NOTE HERE IF OPERATIONAL PLANT DOES NOT RESPOND</i>
CAUSE OF FAILURE <i>High level v.02</i>								
CORRECTIVE ACTION <i>Reset pump</i>								
<i>RL</i>					<i>Plants Notified Polaris Down?</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<i>NOTE HERE IF OPERATIONAL PLANT DOES NOT RESPOND</i>
CAUSE OF FAILURE								
CORRECTIVE ACTION <i>Flare online</i>								
<i>TECH</i>	<i>FAIL DATE</i>	<i>FAIL TIME</i>	<i>RESTART DATE</i>	<i>RESTART TIME</i>	<i>Plants Notified Polaris Down?</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<i>NOTE HERE IF OPERATIONAL PLANT DOES NOT RESPOND</i>
CAUSE OF FAILURE								
CORRECTIVE ACTION								
<i>TECH</i>	<i>FAIL DATE</i>	<i>FAIL TIME</i>	<i>RESTART DATE</i>	<i>RESTART TIME</i>	<i>Plants Notified Polaris Down?</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<i>NOTE HERE IF OPERATIONAL PLANT DOES NOT RESPOND</i>
CAUSE OF FAILURE								
CORRECTIVE ACTION								

Must respond to alarms within 15 minutes. If temperature exceeds -120 F in the effluent for 4 or more hours, plants must be notified to stop venting if safe to do so and to follow malfunction plan on batch sheet. Must document Polaris malfunction dates, times, causes, and corrective actions. Plant notification to Alpha Beta; Gamma; Delta 2; Tank Farm.

Conservative just

Tiv. not tested
 THSOS + TE516
 08/28/2016 - passed

Vessel	Substance in Tank/Vessel	Line, Attachments, Other	Fluid	Initial Pressure	Ending Pressure	P units	Duration of Test	Rate	Pass/Fail	Corrective Measures/Venting	Date
(tag #)		(orig. destination)	(orig. material)	(orig. WC, PSI)	(orig. WC, PSI)	(PSI, WC, PSI)	(min)	(PSI, WC, PSI)	(PASS < 10 PSI, 51.7 mm WC / hr)	(Exhaust or Vent)	(if completed)
04TK43	0246AV	PSV, PVCV, Recycle Line	N2	2 1/2	1 1/2	WC	30 min	#DIV0	F	FLARE (CV)	
05TK501	0120A	PSV, PVCV, Recycle Line	Ar	7 1/2	1 1/2	WC	30 min	#DIV0	F	FLARE (CV)	
05TK505	E0092	PSV, PVCV, Recycle Line	N2	4 1/2	0	WC	30 min	#DIV0	F	FLARE (CV)	
05TK507	WASTE	PSV, PVCV, Recycle Line	N2	18.3	190	PSI	30 min	#DIV0	P	FLARE	
05TK511	WASTE	PSV, PVCV, Recycle Line	N2	7/8	7/8	WC		#VALUE		VENT TO TOX	
05TK516	0120A	PSV, PVCV, Recycle Line	Ar	1 1/2	3 1/2	WC	30 min	#DIV0	P	FLARE	
05TK519	0259CM	PSV, PVCV, Recycle Line	N2	1.3 PSI	1.2	PSI	30 min	#DIV0	P	FLARE	

THSOS - N2 needs to handle from 2015

3053 needs new tube
 410 needs new tube

need higher regulator - held 3 1/2 - 24 HRS.

in not tested
 8/20/16

The 310 = 5' - 0' FAIL
 The 305 = 5' - 0' PASS
 The 331 = 7' - 4' PASS
 The 369 = 5' - 0' FAIL
 The 433 = 4' - 0' FAIL

5' WC to 5' WC
 PASS

POLARIS CRYOGENIC CONDENSER FAILURE LOG SHEET for 20

page of

TECH	FAIL DATE	FAIL TIME	RESTART DATE	RESTART TIME	Plants Notified Polaris Down?	YES	NO	NOTE HERE IF OPERATIONAL PLANT DOES NOT RESPOND
Ne	09/07/2014	23:17	09/07/2014	23:20	Plants Notified Polaris Down?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
CAUSE OF FAILURE								
Highest Pressure CO2								
CORRECTIVE ACTION								
Restart								
TECH	FAIL DATE	FAIL TIME	RESTART DATE	RESTART TIME	Plants Notified Polaris Down?	YES	NO	NOTE HERE IF OPERATIONAL PLANT DOES NOT RESPOND
Ne	09/07/2014	23:35	09/07/2014	23:50	Plants Notified Polaris Down?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
CAUSE OF FAILURE								
Highest Pressure CO2								
CORRECTIVE ACTION								
Restart								
TECH	FAIL DATE	FAIL TIME	RESTART DATE	RESTART TIME	Plants Notified Polaris Down?	YES	NO	NOTE HERE IF OPERATIONAL PLANT DOES NOT RESPOND
Ne	09/08/2014	00:50	09/08/2014	01:00	Plants Notified Polaris Down?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
CAUSE OF FAILURE								
Highest Pressure CO2								
CORRECTIVE ACTION								
Restart								
TECH	FAIL DATE	FAIL TIME	RESTART DATE	RESTART TIME	Plants Notified Polaris Down?	YES	NO	NOTE HERE IF OPERATIONAL PLANT DOES NOT RESPOND
Ne	09/08/2014	22:15	09/09/2014	01:20	Plants Notified Polaris Down?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
CAUSE OF FAILURE								
Vapor Line Full of Liquid								
CORRECTIVE ACTION								
Drain All Pots								
TECH	FAIL DATE	FAIL TIME	RESTART DATE	RESTART TIME	Plants Notified Polaris Down?	YES	NO	NOTE HERE IF OPERATIONAL PLANT DOES NOT RESPOND
Ne	09/09/2014	13:26	09/09/2014		Plants Notified Polaris Down?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
CAUSE OF FAILURE								
High Temp Flange Inverter								
CORRECTIVE ACTION								
Restarted								
TECH	FAIL DATE	FAIL TIME	RESTART DATE	RESTART TIME	Plants Notified Polaris Down?	YES	NO	NOTE HERE IF OPERATIONAL PLANT DOES NOT RESPOND
Ne	09/22	6:30			Plants Notified Polaris Down?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
CAUSE OF FAILURE								
CORRECTIVE ACTION								
Flare out live								

Must respond to alarms within 15 minutes. If temperature exceeds -120 F in the effluent for 4 or more hours, plants must be notified to stop venting if safe to do so and to follow malfunction plan on batch sheet. Must document Polaris malfunction dates, times, causes, and corrective actions. Plant notification to Alpha Beta; Gamma; Delta; Tank Farm.

POLARIS CRYOGENIC CONDENSER FAILURE LOG SHEET for 20 16page of

TECH	FAIL DATE	FAIL TIME	RESTART DATE	RESTART TIME	Plants Notified Polaris Down?	YES	NO	NOTE HERE IF OPERATIONAL PLANT DOES NOT RESPOND
12	09/26/2016	1605	09/26/2016	1610	Plants Notified Polaris Down?	YES	<input checked="" type="radio"/> NO	NO SW IN PLANTS
CAUSE OF FAILURE								
High Pressure CO2								
CORRECTIVE ACTION								
Restart @ 1610.								
12	09/26/2016	1535	09/26/2016	1535	Plants Notified Polaris Down?	YES	<input checked="" type="radio"/> NO	NO SW IN PLANT
CAUSE OF FAILURE								
High AP CO2								
CORRECTIVE ACTION								
Restart								
12	11/04/2016	0445	11/04/2016	0500	Plants Notified Polaris Down?	YES	<input checked="" type="radio"/> NO	NOTE HERE IF OPERATIONAL PLANT DOES NOT RESPOND
CAUSE OF FAILURE								
High AP CO2								
CORRECTIVE ACTION								
Restart								
12	11/04/2016	0535	11/04/2016	0545	Plants Notified Polaris Down?	YES	<input checked="" type="radio"/> NO	NOTE HERE IF OPERATIONAL PLANT DOES NOT RESPOND
CAUSE OF FAILURE								
High AP CO2								
CORRECTIVE ACTION								
Restart								
12	11/04/2016	0045	11/24/2016	0055	Plants Notified Polaris Down?	YES	<input checked="" type="radio"/> NO	NOTE HERE IF OPERATIONAL PLANT DOES NOT RESPOND
CAUSE OF FAILURE								
High AP CO2								
CORRECTIVE ACTION								
Restart								

Must respond to alarms within 15 minutes. If temperature exceeds -120 F in the effluent for 4 or more hours, plants must be notified to stop venting if safe to do so and to follow malfunction plan on batch sheet. Must document Polaris malfunction dates, times, causes, and corrective actions. Plant notification to Alpha Beta; Gamma; Delta 2; Tank Farm.

POLARIS CRYOGENIC CONDENSER FAILURE LOG SHEET for 20 16

page of

TECH	FAIL DATE	FAIL TIME	RESTART DATE	RESTART TIME	Plants Notified Polaris Down?	<input checked="" type="radio"/> YES <input type="radio"/> NO	NOTE HERE IF OPERATIONAL PLANT DOES NOT RESPOND
ORC	11/24/2016	0120	11/24/2016	0125	Plants Notified Polaris Down?	<input checked="" type="radio"/> YES <input type="radio"/> NO	
CAUSE OF FAILURE							
High AP CO2							
CORRECTIVE ACTION							
TECH	FAIL DATE	FAIL TIME	RESTART DATE	RESTART TIME	Plants Notified Polaris Down?	<input checked="" type="radio"/> YES <input type="radio"/> NO	NOTE HERE IF OPERATIONAL PLANT DOES NOT RESPOND
ORC	11/24/2016	0310	11/24/2016	0325	Plants Notified Polaris Down?	<input checked="" type="radio"/> YES <input type="radio"/> NO	
CAUSE OF FAILURE							
Poz pump Tripped out							
CORRECTIVE ACTION							
Reset Poz Pump Drain tank in manual Restarted unit							
TECH	FAIL DATE	FAIL TIME	RESTART DATE	RESTART TIME	Plants Notified Polaris Down?	<input checked="" type="radio"/> YES <input type="radio"/> NO	NOTE HERE IF OPERATIONAL PLANT DOES NOT RESPOND
PL	11/30/2016	0415	11/30/2016	0425	Plants Notified Polaris Down?	<input checked="" type="radio"/> YES <input type="radio"/> NO	
CAUSE OF FAILURE							
XV-043 stuck							
CORRECTIVE ACTION							
Restart							
TECH	FAIL DATE	FAIL TIME	RESTART DATE	RESTART TIME	Plants Notified Polaris Down?	<input checked="" type="radio"/> YES <input type="radio"/> NO	NOTE HERE IF OPERATIONAL PLANT DOES NOT RESPOND
ORC	12/13/2016	0630	12/13/2016	0258	Plants Notified Polaris Down?	<input checked="" type="radio"/> YES <input type="radio"/> NO	
CAUSE OF FAILURE							
PO2 Pump tripped off							
CORRECTIVE ACTION							
Reset pump, Pumped level down in manual, Restarted.							
TECH	FAIL DATE	FAIL TIME	RESTART DATE	RESTART TIME	Plants Notified Polaris Down?	<input checked="" type="radio"/> YES <input type="radio"/> NO	NOTE HERE IF OPERATIONAL PLANT DOES NOT RESPOND
ORC	12/13/2016	0323	12/13/2016	0420	Plants Notified Polaris Down?	<input checked="" type="radio"/> YES <input type="radio"/> NO	
CAUSE OF FAILURE							
Blower tripped Inverter							
CORRECTIVE ACTION							
Richard Chubb Restarted							
TECH	FAIL DATE	FAIL TIME	RESTART DATE	RESTART TIME	Plants Notified Polaris Down?	<input checked="" type="radio"/> YES <input type="radio"/> NO	NOTE HERE IF OPERATIONAL PLANT DOES NOT RESPOND
ORC	12/14/2016	0140	12/21/2016	0310	Plants Notified Polaris Down?	<input checked="" type="radio"/> YES <input type="radio"/> NO	
CAUSE OF FAILURE							
XV-043 malfunction							
CORRECTIVE ACTION							
Switched A/C line's on units. Restarted unit							

Must respond to alarms within 15 minutes. If temperature exceeds -120 F in the effluent for 4 or more hours, plants must be notified to stop venting if safe to do so and to follow malfunction plan on batch sheet. Must document Polaris malfunction dates, times, causes, and corrective actions. Plant notification to Alpha Beta; Gamma; Delta 2; Tank Farm.

ORC 12/29/16 2140 12/29/16 2150

XV043 malfunction

Started with Restarted

ATTACHMENT # 5: REQUEST FORM

RF#: _____

SECTION I - TO BE COMPLETED BY THE DEPARTMENT MANAGER:

CHANGE REQUEST FORM ☐CORRECTIVE/PREVENTIVE ACTION (CAPA) REQUEST FORM ☐

Department Manager Name	Date of Request	Estimated Completion Date	MOC Process		
A. Lloyd for A. LaRocca	10/12/2016	12/05/2016	Normal <input checked="" type="checkbox"/>	Temporary <input type="checkbox"/>	Emergency <input type="checkbox"/>

Associated Process Name and Location:

 Type of Change/CAPA: Site ☐; Equipment ☐; Piping ☐; Process ☐; Raw Material ☐; Intermediate ☐; Other ☐; If other, specify:

MOC Process		CAPA Process	
Description of Proposed Change(s)		Description of Nonconformance(s)	
A new process line will be run with jacketed pipe from the bottom of R-308 to SE-302. This line will include 3 jacketed valves. New oil piping will be run from the hot oil header in the highline to SE-302 and one coil on SE-302 will be converted to hot oil. The valves, process pipe, hot oil pipe, and SE-302 will be insulated. A line will be run from R-101 through a filter and into R-302A with a recycle line also through the filter. A line will be installed running from R-302A to R-308.		HA-88 OPTIMIZE 9/12/11	
Objective and Technical Basis of Proposed Change These changes will add vessels to the HA88 train configuration and increase our capacity (reduce cycle time, increase throughput).		Investigation and root cause(s) of Nonconformance(s)	

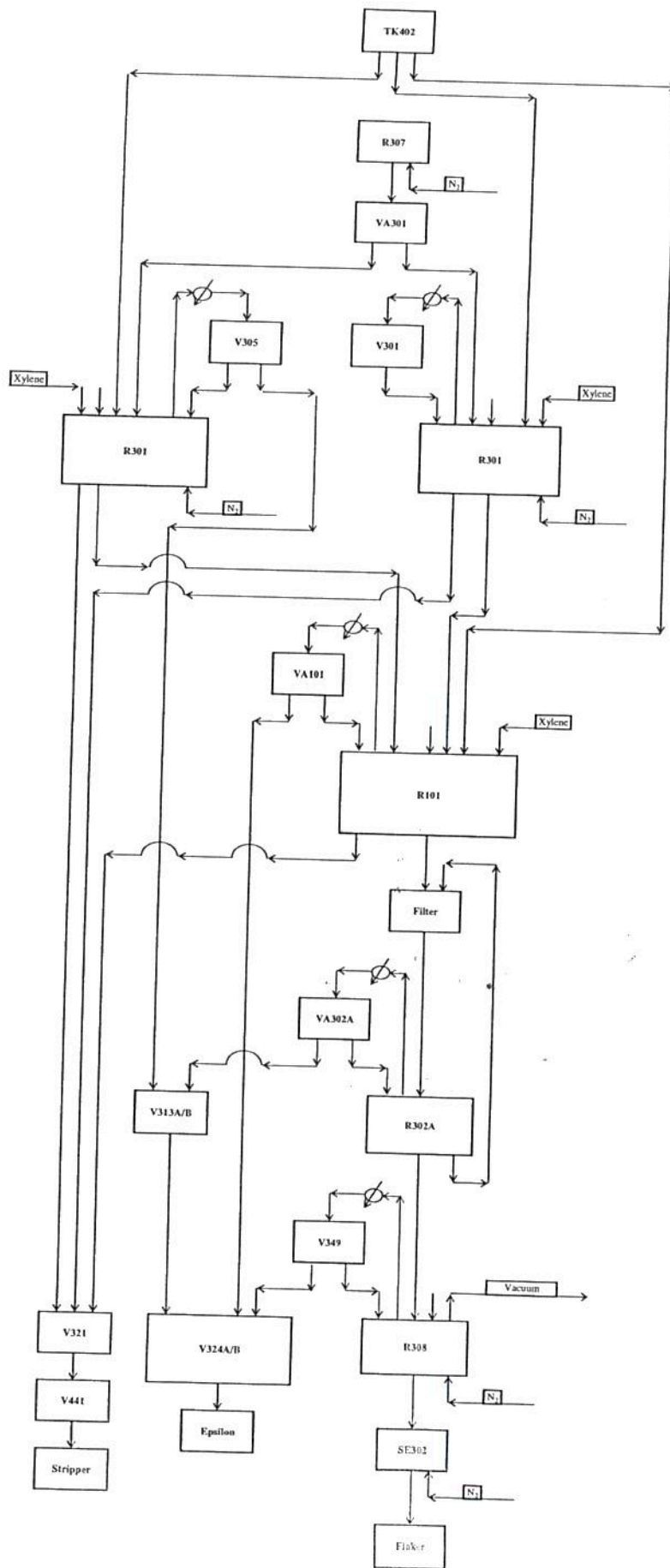
 Who will implement the change/CAPA? Production ☒; Maintenance ☒; E & I ☐; General Services ☐; Safety ☐; Environmental ☐; Technology ☐; Engineering ☒; Other ☐; If other, specify:

 How will costs be covered? Capital Project ☒; Other ☐; If other, specify:

Account # (if applicable):

CQS1010 REV: 2

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Vince Centioni

Attachments:

MOC AB HA88 Cycle Optimization.doc; HA88 Train for 12052016.pdf

Vince,

I'm sending this to you first before I even submit to QA so you can start looking into any permit requirements on your end for this updated train configuration for HA88. We aren't running this Xylene based process in any new equipment that already hasn't had Xylene processes in it before. In summary, here are some more information:

1. We will now be utilizing SE302 for this process as a hot oil, molten feed vessel to the flaker. There will be no operations (reactions, distillations, etc.) performed in this vessel SE302 as this will merely be a holding vessel for the molten product to feed the flaker (83X content is less than 250ppm at this point). This vessel on HEB campaign is used for the intermediate SL0234.
2. There will be no change to HA88 stoichiometry.
3. There will be no change to HA88 methodology.

If you need anything else, please let me know and I will get you what you need. You should have all of the original HA88 manufacturing quantities from the originating MOC when we started this process earlier this year and nothing has changed to those quantities.

Anthony LaRocca
Vice President of Operations

Vince Centioni
Environmental Manager



888 Woodstock St.
Georgetown, SC 29440
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Mobile: 843-240-0577
Email: v.centioni@3VSigmaUSA.com

Vince Centioni

From: Anthony Larocca
Sent: Friday, January 20, 2017 4:06 PM
To: Vince Centioni
Cc: Steven Varone
Subject: RE: HA88 Opt train change 12/2016

No, that jacketed line contains the molten final product where 83X content is less than 100ppm. There is no free xylene that could or would exist in this jacketed line.

From: Vince Centioni
Sent: Friday, January 20, 2017 3:50 PM
To: Anthony Larocca
Cc: Steven Varone
Subject: HA88 Opt train change 12/2016

Would this line be considered – 083X under LDAR. Just trying to get my monitoring train straight.

'Thanks Vince

CHANGE REQUEST FORM ☐

CORRECTIVE

Department Manager Name	Date of Request	Estimated Completion
A. Lloyd for A. LaRocca	10/12/2016	12/05/2016

Associated Process Name and Location.

Type of Change/CAPA: Site ☐ Equipment ☐ Piping ☐ Process ☐ Raw Material ☐

MOC Process	
Description of Proposed Change(s)	Description
A new process line will be run with jacketed pipe from the bottom of R-308 to SE-302. This line will include 3 jacketed valves. New oil piping will be run from the hot oil header in the highline to SE-302 and one coil on SE-302 will be converted to hot oil. The valves, process pipe, hot oil pipe, and SE-302 will be insulated. A line will be run from R-101 through a filter and into R-302A with a recycle line also through the filter. A line will be installed running from R-302A to R-308.	
Objective and Technical Basis of Proposed Change	Investigation
These changes will add vessels to the HA88 train configuration and increase our capacity (reduce cycle time, increase throughput).	

Who will implement the change/CAPA? Production ☒ Maintenance ☒ E & I ☐
☐ Engineering ☒ Other ☐ If other, specifyHow will costs be covered? Capital Project ☒ Other ☐ If other, specify

Account # (if applicable)

COS1010 REV. 2

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Vince Centioni

A-408/R-40

DELAY
REPAIR

From: Vince Centioni
Sent: Monday, November 28, 2016 1:35 PM
To: Joe Bosse
Subject: RE: A408 Agitator FID Readings 11/28/2016

Ok. At least we made an 'initial repair attempt' w/ in 5 days. Just keep me posted and as soon as we are able to fix have Steve V. or myself retest.

'Thanks Vince

From: Joe Bosse
Sent: Monday, November 28, 2016 1:31 PM
To: Vince Centioni
Subject: RE: A408 Agitator FID Readings 11/28/2016

The agitator seal fluid lines plugs was the "initial attempt at repair" in response to the readings found by Steve, not the cause. The seal pot itself has been out of service for years going back before I came to Gamma. We do not have a seal to replace the one on R402 on-site and currently Engineering is trying to find one.

Joe Bosse
Gamma Plant Unit Manager



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Email: j.bosse@3VSigmaUSA.com

From: Vince Centioni
Sent: Monday, November 28, 2016 1:28 PM
To: Joe Bosse; Steven Varone; Walt Fulton; Anthony Larocca
Cc: Scott McNair; Ryan Dorsey; Dusty Miller; Robert Stamper; Randy Cleland
Subject: RE: A408 Agitator FID Readings 11/28/2016
Importance: High

I doubt EPA/SC DHEC will easily accept that 'seal fluid lines' were simply 'plugged off' thus causing HAP vapors to escape from the damaged faces of the mechanical seal. Is it not a 'common' practice to remove the mechanical seal, replace the 'grooved' seal faces and reassemble? Is it also not a 'common' practice to replace the all mechanical seal with a more conventional 'packing seal' in order to mitigate vapors emissions? OSHA will also be very much involved if vapors accumulated in the nearby working environment would show exposure levels above permissible limits. (8 hrs working shift PEV)

'Vince

From: Joe Bosse
Sent: Monday, November 28, 2016 12:33 PM
To: Vince Centioni; Steven Varone; Walt Fulton; Anthony Larocca
Cc: Scott McNair; Ryan Dorsey; Dusty Miller; Robert Stamper; Randy Cleland
Subject: RE: A408 Agitator FID Readings 11/28/2016

In order to repair this agitator seal R402 will need to be baked and cleaned out, which takes a week. This is due to high concentrations of 0259CM present in the reactor when empty due to residual polymer on all reactor surfaces that can only be removed by being "baked and cleaned out". The repair itself will require the removal of the entire top half of the agitator leaving the reactor itself open to the environment for multiple days. Once R402 is clean, the repair itself will take multiple days to complete due to extensive labor involved. Others included in this email can confirm, but the length of the shutdown currently is not long enough to complete all of the work required to replace this seal due to the extensive preparations required.

Joe Bosse
Gamma Plant Unit Manager



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Email: j.bosse@3VSigmaUSA.com

From: Vince Centioni
Sent: Monday, November 28, 2016 12:23 PM
To: Joe Bosse; Steven Varone; Walt Fulton
Cc: Scott McNair; Ryan Dorsey; Dusty Miller; Robert Stamper; Randy Cleland
Subject: RE: A408 Agitator FID Readings 11/28/2016

Are we not having a winter facility shutdown from Jan 3rd – Jan 8th / 10th ..?

Need to include this job for that timeframe. How can I explain this 'delay of repair' that will exceed 15 days when we decided to hold off fixing until Feb-March 2017..?
Regulators may issue NOVs, just saying.

'Vince

From: Joe Bosse
Sent: Monday, November 28, 2016 12:12 PM
To: Vince Centioni; Steven Varone; Walt Fulton
Cc: Scott McNair; Ryan Dorsey; Dusty Miller; Robert Stamper; Randy Cleland
Subject: RE: A408 Agitator FID Readings 11/28/2016

All,

Excerpt from another email conversation regarding this seal leak:

"The repair made was a first attempt and is only a temporary repair, the seal still needs to be replaced. Dusty and Bobby had discussed the leak the week prior to temporary repair. When the seal pot was disconnected from the R402 agitator the seal fluid lines to the seal had been completely removed and the ports had been left open. Last week Bobby used a plug to block the ports that the seal pot fluid lines had been connected to. This port exhausted 0259CM vapors and was a major contributor to the high concentrations of 0259CM vapors detected. This seal still needs to be replaced though and the seal pot reconnected. The line is tentatively scheduled to go down in February-March 2017 unless planning decides to take it down earlier."

Initial repair was made on 11/23/2016.

Joe Bosse
Gamma Plant Unit Manager



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Email: j.bosse@3VSigmaUSA.com

From: Vince Centioni
Sent: Monday, November 28, 2016 11:53 AM
To: Steven Varone; Joe Bosse; Walt Fulton
Cc: Scott McNair; Ryan Dorsey; Dusty Miller; Robert Stamper; Randy Cleland
Subject: RE: A408 Agitator FID Readings 11/28/2016

What 'initial repair' was made..?

When was it made..?

'thanks Vince

From: Steven Varone
Sent: Monday, November 28, 2016 11:37 AM
To: Vince Centioni; Joe Bosse; Walt Fulton
Cc: Scott McNair; Ryan Dorsey; Dusty Miller; Robert Stamper; Randy Cleland
Subject: A408 Agitator FID Readings 11/28/2016

Vince,

I took a reading of A408 after the initial repair attempt. The reading obtained was **31,167 PPM** of 0259CM. This was the average reading with the use of a 1:25 dilution probe. An additional repair is needed.

Steven Varone
EHS Specialist

Vince Centioni

From: Vince Centioni
Sent: Thursday, September 15, 2016 12:36 PM
To: Alex Llyod
Cc: Timmy Wall; Scott McNair; Steven Varone; Rusty Swails
Subject: Current storage tank list for Zook
Attachments: 09.15.2016.xlsx

See Reed's list for current inventory. Use my table, some of the tanks are not in use/empty/haz.material is gone:
ex:

- V-370 (moving to WWTP) benzotrichloride-0589BT gone
- TK-311 0721CA allyl chloride 86'd
- entire anhydrous ammonia TK pulled and 86'd

Most hazardous material we have on-site is: (extremely hazardous classification)

- 224AN-acrylonitrile stored in TK-255
- SO3-sulfur trioxide stored in TK-337

After those focus on pure HAP tanks (hazardous air pollutants):

- MeOH, 0083X, 259CM, 621AC, 625AE, 120A, Dist A-TK254; Dist B-TK301,TK310,TK-513; Dist C-V381
- haz waste tanks - V381,tk511,v369
- haz process wastewater tanks - TK-510,v584,v441
- haz.polyvic tanks - F0422/F0092 - TK-514, TK-515

Remember the tanks in the plant dikes:

- A/B- V358,V324a,V324b,V322, etc
- Gamma-TK410,V432
- Delta-TK501,505,507,516

Vessel	Substance in TK/Vessel
(tag #)	
02TK102	0135M
02TK103	F0175
02TK104	0246AV
02TK210	0259CM
02TK251	0083X
02TK252	0120A
02TK254	F0893
02TK255	0224AN
02TK256	SL0937

03TK301	MeOH:MeAce
03TK305b	0625AE
03TK310	Dist B
03TK311	0721CA
03TK338	SL0080
03TK361b	0120A
03TK370	F1101
03TK382	259CM
03V309	0135M
03V310	0135M
03V369	Haz Waste
03V370	0598BT
03V374	SL0237/0083x
03V381	Dist C
04TK410	0120A
04TK411	0259CM
04TK433	0246AV
05TK501	0120A
05TK505	F0092
05TK507	0120A
05TK516	0120A
05TK519	0259CM
05TK511	Haz Waste

V432 Gamma 259CM in dike outside

FYI,

Last priority should be non-haz product tanks storing water based Polyvic (F309) & water based optical brightner - F888,886,881,257 (reference Reeds list) and non-haz. process wastewater tanks:

- V557,V539,V321,V360,V440,v421,v586,etc

Also, Timmy Wall had some tanks that failed pressure tests perhaps should be inspected but they are on my table above. I think the issue w/ them are the conservation vents..?

From: Reed Barker

Sent: Thursday, September 15, 2016 11:59 AM

To: Vince Centioni; Stacey Altman
Subject: RE: Current storage tank list

From: Vince Centioni
Sent: Thursday, September 15, 2016 11:53 AM
To: Reed Barker; Stacey Altman
Subject: Current storage tank list

Reed,

Do you have a current sheet w/ the material in each storage tank...??

'thanks Vince

Vince Centioni
Environmental Manager



888 Woodstock St.
Georgetown, SC 29440
Office: 843-520-5128
Mobile: 843-240-0577
Email: v.centioni@3VSigmaUSA.com

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Vince Centioni

From: Steven Varone
Sent: Thursday, December 15, 2016 3:30 PM
To: Vince Centioni
Subject: A408 Gamma and Valve #54045 Epsilon

Vince,

I checked the Gamma A408 Agitator today. I received a reading between 90-100 PPM Methylene Chloride (0259CM RF). The agitator was running.

I also noticed a slight leak on Valve # 54045 next to P 572 in the Epsilon Plant. The leak is approximately at 10 ppm which is well within the specs but may need to be tightened or monitored in the future.

Thanks.

Steven Varone
EHS Specialist



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Details	Inspect pump seal on P-506b for V513 in Delta 2 NW corner - 259CM vessel under LDAR regulations		
Description	P-506b/V513 seal, visual leak - LDAR		
Reference	Steve Varone, Delta 2		
Emergency	<input type="checkbox"/>		
Schedule Date	12/9/2016		
Building	Delta 2	Floor	Ground
Room			
Asset	P-506B-5A	Procedure	WORK-SAFETY
Your Name	WT	Phone	
Ext	127		

P-506b
VISUAL
LEAK

Vince Centioni

From: Vince Centioni
Sent: Friday, December 09, 2016 2:51 PM
To: Randy Long; Thad Hayes; Ty Mercer
Cc: Anthony Larocca; Scott McNair; Dusty Miller; Steven Varone
Subject: RE: p506a - V513 LDAR

Importance: High

Tracking:	Recipient	Delivery	Read
	Randy Long	Delivered: 12/9/2016 2:51 PM	
	Thad Hayes	Delivered: 12/9/2016 2:51 PM	
	Ty Mercer	Delivered: 12/9/2016 2:51 PM	
	Anthony Larocca	Delivered: 12/9/2016 2:51 PM	
	Scott McNair	Delivered: 12/9/2016 2:51 PM	
	Dusty Miller	Delivered: 12/9/2016 2:51 PM	
	Steven Varone	Delivered: 12/9/2016 2:51 PM	Read: 12/9/2016 2:52 PM

Steve V. inspected this again today as he was doing LDAR valves, noticed it is getting worse. Leaking into floor drain – 259CM. Please fix.

'thanks Vince

Vince Centioni
Environmental Manager



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From: Vince Centioni
Sent: Wednesday, December 07, 2016 2:36 PM
To: Randy Long; Thad Hayes; Ty Mercer
Cc: Anthony Larocca; Scott McNair; Dusty Miller; Steven Varone
Subject: p506a - V513 LDAR
Importance: High

Steve,

Monitored 2,000 ppm at the seal, he also noticed a visual leak, with residual material. Please get this addressed. The LDAR limit is 10,000 ppm, but it will only get worse. Visual material needs to be cleaned off as well.

'thanks Vince

Vince Centioni
Environmental Manager



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